A Look at the Data

Where do you begin? BEGIN WITH THE END IN MIND. In other words, begin your data search by focusing on the answers that identify the major injury problems and their significance in the community. Where you look for these answers depends upon whether your community is defined as a town or county, or a non-geo-political area such as a hospital or business. In either case, you probably will need to go to multiple sources since not all of the data are computerized or centralized.

Data Workgroup

Convene a Data Workgroup to facilitate access to the data. This Workgroup should consist of data owners and users such as physicians, nurses, hospital administrators, Emergency Medical Service (EMS) providers, system managers, health services researchers, public health experts, insurance companies, large businesses with computerized employee health records, and others. Timely access depends upon whether the data are routinely collected and computerized and if the staff and data system have the time and capability to respond to requests.

The five questions listed below will help you get started. Answering the first two questions will help the community identify its injury problems and their significance as indicated by the data. Answering the third question will identify injury problems as perceived by the community. Answering the fourth question will prioritize the prevention efforts and the fifth will indicate the success of the Safe Communities process.

1. Who, What, Where, When, and How Are the People in Your Community Being Injured?

Answers to the questions *Who is injured? What are the circumstances surrounding the injury? Where and when do the injuries occur? and How are they caused?* establish a baseline of information about the injury problem. Specific data are needed to answer these questions for your community. To identify populations at risk for injury, look for data that indicate the age and sex of the victim and also the external cause and severity of the injury. When you know how the injury was caused — motor vehicle crash, fall, etc. — you can separate and compare, for example, injuries caused by motor vehicle crashes with other causes. Data that indicate the prevailing circumstances, such as speeding, weather, etc., enable you to analyze what contributed to the injury event. Documentation of the location of the incident makes it possible to map injury

patterns geographically. Date and time are crucial to determine when injuries occur and how frequently. The following section describes the various sources of data that include the answers you need.

Fatal Injuries
When an injury victim dies at the scene, enroute, in the emergency department, after admission to the hospital, or after discharge, the death is documented in a medical record and/or a death certificate. Death certificate data are computerized statewide and reported routinely by town or county as part of a Vital Statistics report. If your community is a town or county, begin the search for information about fatal injuries by locating the Vital Statistics reports that may be available in the reference department at the local library (on-site or through inter-library loan) or Department of Health. These reports publish annual totals by age, sex, underlying cause (medical), and the external cause for all injury victims, regardless of residence, who die in a town, county, or state. The local coroner or medical examiner also collects information about the fatal injuries that must be reported by law. These data are more recent than state data but may not be computerized. By looking at all of the fatal injuries, you can identify the magnitude by cause of those that occur in your community.

Non-fatal Injuries
Very few injury victims die compared to those who are injured. So to really understand the extent of the injury problem, you need access to information about the non-fatal injuries. Non-fatal injury data are collected by the public safety officials who are called to provide help, by the Emergency Medical Technicians (EMTs), physicians, nurses and others who provide care, and by the insurance companies that pay for the care. These data may be found in medical and non-medical records.

Medical Records
Medical records include data about the types of non-fatal injuries which occur, their treatment, and whether the injured victim went home or was transferred to a higher level of care. Some medical records also document the external cause of the injury (crash, fall, etc.). With this information, types of injuries can be related to specific causes.

Medical data for injury victims requiring transport by an ambulance or admission to a hospital are usually computerized, frequently statewide. If your community is a town or county, computerized state data are particularly useful because they can be disaggregated easily to the town or county level, obtained without the delay and expense of new data collection, and used for comparisons to local data. Computerized state data can be distributed without identifiers to protect patient confidentiality and facilitate use of the data for injury control purposes. Because they are statewide they include information about both rural and urban areas and, thus, can show for residents and non-residents the patient flow patterns in and out of the community for health care. Since state data take time to collect and merge into one data system, data collected by the local police or medical provider may be more recent. But the local data may not be computerized and access to the paper records may be difficult. Medical records are completed by the EMS personnel at the scene and enroute; and by physicians and nurses during the course of treatment at the office, emergency department (ED), hospital, and after discharge. The content of these records is described below relative to the *Who, What, Where, When and How questions.*

EMS: Statewide computerized EMS data systems exist in less than half of the states. **The contact person is your local ambulance service director** who can

tell you if the state data exist and the telephone number of the state EMS director in charge of releasing the data. EMS reports record the date, time, and location of the EMS pick-up (usually close to when and where the injury actually occurred), and the age, sex, and severity (live/die) at the scene and enroute for the injury victim. Cause of injury data recorded by EMS is frequently limited to only the motor vehicle crash. Other types of causes may be documented in the narrative but not computerized. EMS data include only injury victims cared for by EMS. Information is not recorded describing the circumstances surrounding the injury event.

Emergency Department (ED): Statewide computerized ED data are available in 10 percent of the states. **The contact person is your local hospital administrator**. ED data provide information about who (age and sex) was treated in the ED for an injury and when (date and time of admission). Information about how the injury occurred is available if the external cause of injury is documented. Patient disposition information indicates who dies in the ED, is discharged home, or admitted as an inpatient. No information is recorded to indicate what contributed to the injury event or where the injury occurred. However, injury victims are usually treated locally unless transport out of the community is required to obtain a higher level of care.

Hospital: Statewide computerized hospital discharge data exist in more than half of the states. **The contact person is your local hospital administrator**, who can tell you if the state has statewide hospital discharge data and whom you should contact for release of the data. It could be the Department of Health, the Hospital Association, a special commission responsible for containing health care costs, or some other agency. Hospital discharge data provide information indicating who (age and sex) was hospitalized for an injury, when (date and time of admission to the hospital), and the severity of the injury at discharge (live/die). It also may be possible to obtain information about the cause of the injury if the hospitals in your community record E-codes. Although the hospital record does not indicate the exact location of where the injury occurred, most injuries are treated locally unless transport out of the community is required to obtain a higher level of care. No information is available in this data file describing the prevailing circumstances that led to the injury.

Other: Non-fatal injury data also are collected when care is provided at a physician's office, clinic, health maintenance organization (HMO), rehabilitation center, etc. These data are rarely computerized and thus are difficult to access unless all of the providers are willing to collect the data for you. **The contact person is your local physician, HMO, etc**.

Non-Medical Records

Non-fatal injury data are also available from non-medical data sources that provide extensive information about the injury event. Non-medical data include the crash and insurance records. Each is described below.

Crash: Crash data provide a wealth of information about one of the major causes of injury in most communities — the motor vehicle crash. Accessing these data is a good place to start since almost all states have computerized police crash data statewide managed by either the Office of Public Safety or the Department of Transportation. **The contact person is your local police chief or your State Governor's Highway Safety Representative**. The computerized police crash data include who was injured (age and sex), when (date and time), where the crash occurred, and the circumstances surrounding the crash (type of roadway, weather, driver behavior, etc.). It distinguishes between types of vehicles and

between occupants, pedestrians, and pedalcyclists. No information is included about the type of injury in medical terms or the cost of treatment.

Insurance: Information collected by insurance companies supports the claims process. Because the data are company specific, you will need to contact the companies who cover the majority of residents within your community. Insurance claims data describe the event and those involved, and provide limited medical information along with the billed charges. They are computerized by the insurance company and merged nationally in a private database supported by the insurance industry to prevent fraudulent claims. Access requires permission from each insurance company and is restricted to protect the proprietary nature of the business. **The contact person is your state's insurance commissioner or local insurance agent**.

2. How Significant is the Injury Problem for Your Community Compared to a Similar Community, the State or the Nation?

The answers to the Who, What, Where, When and How questions discussed above create an injury profile for your community. But this information does not tell you about the significance of the injury problem. To understand whether the injury rates in your community are higher or lower than expected, it is necessary to compare your data with others, such as a similar community, the state, or the nation. Data standardized into rates are needed to compare different areas. Rates can be easily generated when the data are population-based (meaning they include everyone in the community, injured or non-injured) and can be linked to census data. An example would be injury expressed as a rate per 100,000 population. **Contact your local health department or an epidemiologist** for help calculating the rates.

Information about the rate of injury is important. But it is also important to know something about the health care patterns in your community, particularly if many of the residents go outside or many non-residents come inside the community for medical care. A new HMO, hospital downsizing, increase in the use of outpatient services, managed care policies, and other changes in the health care structure and delivery patterns may dramatically change the injury distribution patterns at a specific facility or area and thus contaminate use of that data over time to measure progress. Again, your Data Workgroup members have the expertise to monitor the significance of changes in the rates over time.

3. What Data are Needed to Measure the Community's Perception of its Major Injury Problems?

Data are needed to measure the community's perception of the injury problem, since support may depend upon resolving the perceived needs first before addressing problems identified as significant by the data. Community perceptions are identified by surveying the local physicians, nurses, police, EMS, public safety personnel, businesses, the media, and other members of the community for their opinions. Delegate design of the survey questions to the members of your Data Workgroup or statistical experts at the local university or college who have survey research expertise.

4. Which Injury Prevention Programs Should be Implemented First?

Although all unnecessary injuries should be prevented, those that cost the most in terms of dollars or long term disability have a higher priority in the political arena. To determine cost or disability, you need information about the charges billed for treatment and the severity of the injury. Each is discussed below.

Charges Resulting from Injuries

Data are needed that indicate the cost of injury. Cost includes the direct costs that reflect the cost of treatment and the indirect costs that reflect the loss of output if the victim dies prematurely or is unable to return to work of reasonable value. Direct costs are measured at the community level using total billed charges which are documented in the medical record and computerized for the state data file. It is important to note that billed charges, are not all inclusive and thus understate the total actual direct costs of an injury. Actual indirect costs are not usually collected or computerized at the community level. Instead national estimates developed by traffic safety researchers can be used to estimate the indirect costs experienced by your community. **Contact your Governor's Highway Safety Representative or your National Highway Traffic Safety Administration (NHTSA) Regional Administrator** for the information. Indirect costs are important since they include costs for a lifetime of continuing care and diminished quality of life that frequently overshadow the first year of direct medical costs.

Injury Type and Severity

Data about the type and level of severity of the injury are needed to measure the downward shift in severity and the potential for long-term disability. The police use general terms such as broken bone, bleeding, etc., to describe the type of injury and head, neck, etc., for the body area injured; they use a functional measure (KABCO — incapacitated, non-incapacitated, possible, none) to define the level of severity. Medical records provide more specific medical information. Type of injury is indicated by a diagnosis code (ICD-9-CM). The level of severity is measured using the patient's vital signs (blood pressure, pulse, etc.) or diagnosis codes that have been converted into an Injury Severity Score. Data can be retrieved using this information to select a study population.

Data Linkage as a Strategy for Setting Priorities

Data are needed to indicate which injuries are most significant. Type and severity of injury linked to cost information highlight injuries that are high cost per victim but occur rarely and those that are low cost per victim but occur frequently. The latter group may be more significant to the community because their total costs are higher.

When sufficient computerized crash and injury data exist, linkage of these data will help you determine the characteristics of the vehicle, crash, and human behavior that increase the risk for death, poor outcomes such as long-term impairment, and high health care costs within your community. Linked data are useful to determine the relative significance of the nonuse of seat belts, driving under the influence, not wearing a helmet, poor EMS response, unavailability of a trauma surgeon, lack of adequate rehabilitation services, or a combination of

these factors. Using these data, the community can highlight injury problems caused by motor vehicle crashes that may be even more significant than those perceived as problems by its residents.

Local data are the most effective data for setting local priorities. But the community must also understand what injuries are feasible to prevent and at what level, primary or secondary, prevention efforts should be directed. The Data Workgroup is an important resource for focusing data efforts on information that is relevant to the Safe Community.

5. Does the Safe Community Process Work?

Besides measuring changes over time in the deaths, non-fatal injuries, and costs, the community must also monitor the Safe Community process. Administrative data, such as the goals, objectives, detailed tasks, who is responsible, and the time frame for completion of each task specified in a plan of action, are needed for this task. What is proposed in the plan of action can be compared with what actually is accomplished. Minutes and attendance lists for meetings are useful to document the level of community involvement.

A successful Safe Community process is more likely to lead to the prevention of the occurrence of injuries, the reduction in severity for those that do occur, and a reduction in the overall health care costs.

More assistance can be obtained from NHTSA's publications "Getting Started: A Guide to Developing Safe Communities," "So You Want to Link Your State Data," and "Monitoring and Evaluating Safe Communities Programs." Contact your Governor's Highway Safety Representative or NHTSA Regional Representative to locate these documents.